

REMARKS

We have amended the claims to more particularly point out and distinctly claim the invention. We have also canceled claims 19 and 20. As a consequence, claims 1, 3-5, 7-10, 12-15, and 17-18 are pending in this application.

The Examiner rejected claims 1, 4-5, 7-10, 13-15, and 17-20 under 35 U.S.C. §102(b) as anticipated by U.S. 5,995,639 to Kado et al. (a.k.a. Kado).

The Examiner points out that Kado performs a brightness correction on a three-dimensional face which he argues is the same as changing orientation of the three-dimensional face with respect to a light source. He also asserts that Kado generates a two-dimensional image from the brightness corrected three-dimensional face, which he argues is the same as rendering a two dimensional image, as recited in claim 1.

But we have now made it clear in claim 1 as amended that the rendering of “a two dimensional image from the adjusted three-dimensional facial image” is done with respect to said viewpoint. In other words, the perspective from which the two-dimensional image is acquired is changed relative to the perspective from which the two-dimensional facial image was acquired.

Kado does not change the orientation of his structure model with respect to a viewpoint from which a two-dimensional image is rendered. In other words, he does not change the orientation of his structure model with respect to the camera viewpoint. Rather, Kado changes the direction from which the illumination comes while leaving the camera viewpoint unchanged.

The Examiner states that Kado’s change in “light reflectance off the three-dimensional facial image is an adjustment in orientation with respect to the light” and he appears to be arguing that is the same as a change in orientation with respect to viewpoint. But that is not correct. Illumination direction is not the same as camera viewpoint. And changing illumination direction does not mean that camera viewpoint was changed. Indeed, illumination direction and camera viewpoint are two different and independent parameters. One can change the illumination direction and admittedly that is equivalent to changing the orientation of the object with respect to the illumination direction.

But changing the orientation of the object with respect to the illumination direction is not the same as changing the camera viewpoint.

Indeed, Kado says nothing about changing the orientation of his structures with respect to the viewpoint from which an image is rendered. Kado describes one of the objects of his invention as follows:

Another object of the present invention is to provide an apparatus for identifying persons that performs identification with high accuracy against minor fluctuations of photographing conditions such as illumination conditions and the position of the face. [emphasis added] (Col. 1, lines 51-56).

So, Kado uses an approach that is less sensitive to slight changes in the angle of the face and thus does not require changes in orientation with respect to the camera viewpoint. Kado points out:

...a feature amounts extracting section 16 cuts out the part of a face image for each patch stored in image memory 12 to extract a feature amount for the patch based on structure model adjustment section 15. As the feature amount, for example, the average brightness of each patch is used. If the average brightness is used as the feature amount, the brightness distribution over a face comparatively faithfully reflects the three-dimensional shape of a face under definite illumination conditions. Also, the brightness distribution has an advantage of not greatly being affected by a slight change in the angle of the face at the photographing time. The feature amount is not limited to the brightness of each patch (average brightness), and the difference in the brightnesses of adjacent patches can be used. [emphasis added] (Col. 3, line 66 to col. 4, line 12).

Thus, Kado's method does not accommodate large changes in the angle of the face at photographing time and it does not involve changes in orientation of the structure model relative to a viewpoint form which a 2D image is obtained (i.e., a camera viewpoint).

Claims 8 and 13 have limitations similar to those discussed above.

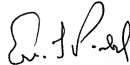
For at least the reasons stated above, we believe that the claims are in condition for allowance and therefore ask the Examiner to allow them to issue.

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Respectfully submitted,

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Eric L. Prah
Registration No.: 32,590
Attorney for Applicant(s)

Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, Massachusetts 02109
(617) 526-6000 (telephone)
(617) 526-5000 (facsimile)